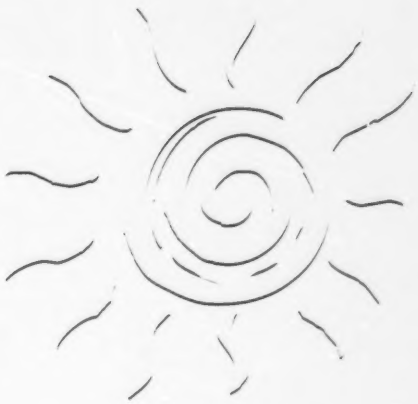

# Sun Awareness and Skin Cancer Prevention Strategy for British Columbia

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# Introduction

Statistics for British Columbia show that skin cancer rates have more than doubled over the past 20 years. This is significantly increasing mortality and morbidity, and increasing health care costs. We need a sustained program of action to bring about a significant reduction in skin cancer rates, increase public awareness of the effects of sun exposure, and lower associated health care costs. To reduce the burden of skin cancer on British Columbians, the B.C. Ministry of Health has developed a Sun Awareness and Skin Cancer Prevention Strategy for British Columbia.

### Purpose

This strategy outlines a framework to guide sun awareness and skin cancer prevention activities, programs and policies in B.C. It indicates broad strategic directions, provides a rationale for action, suggests action areas, identifies partner roles and highlights case study examples of successful initiatives in other jurisdictions. It aims to build consensus and stimulate action by the Ministry of Health, health authorities and various stakeholder groups to raise awareness of the issues and encourage changes in sun-related behaviour among British Columbians.

### Theoretical Foundations

The strategy is shaped by several perspectives and supported by well-established health promotion principles and methods including behavioural, policy, environmental and education interventions for both primary and secondary prevention. Further, the strategy adopts a population health approach that focuses on health gains for the whole population, and considers the broad determinants of health including economic, social and environmental factors.

The strategy is the product of number of psychological, sociological, management and marketing theories including social marketing theory, individual behaviour change models, organizational change theories, consumer information processing theory, diffusion theory, participatory action research, and community development theory. The strategy also incorporates "best practices," drawn from academic and experiential literature and expert opinion. It is important to note, however, that this strategy balances an emphasis on evidence against efforts to encourage innovation and to broaden the scope of sun awareness and skin cancer prevention programs.

### Development

Three processes were involved in developing the Sun Awareness and Skin Cancer Prevention Strategy for British Columbia. First, the published, peer-reviewed literature on sun awareness and skin cancer prevention was surveyed. This was followed by a review of real-life experiences elsewhere, gathering and analyzing documents from similar initiatives by other local, regional, provincial/state and national jurisdictions. Existing resources from provincial and national public health and health protection agencies were also reviewed. Finally, provincial and national experts in the field were identified and consulted to determine relevant issues for inclusion in B.C.'s strategy. Representative experts were drawn from the B.C. Ministry of Health, the B.C. Cancer Agency, the

Workers' Compensation Board of B.C., the B.C. Centre for Commuinity Child Health Research, the Cancer Centre for the Southern Interior of B.C., the UBC Division of Dermatology, the Canadian Cancer Society, Health Canada, Environment Canada, the Canadian Radiation Protection Association and the Canadian Dermatology Association.

# Background

Different types of ultraviolet radiation and various other factors affect the level of ultraviolet radiation in our environment.

## Understanding ultraviolet radiation

The sun radiates energy over a broad spectrum of wave lengths. Ultraviolet (UV) radiation has a shorter wavelength than visible blue or violet light and is responsible for sunburn and other adverse health effects. UV cannot be seen by the human eye or felt on the skin. It is more powerful and hazardous than visible light.

While earth's stratospheric ozone layer shields us from most UV radiation, what gets through can cause skin cancer, cataracts, suppression of the immune system and premature aging of the skin. There are three main types of ultraviolet radiation:

- UVA
  - is not strongly absorbed by the atmosphere
  - damages skin cells
  - contributes to premature aging of skin
  - contributes to skin cancer
- UVB
  - is mostly absorbed by the ozone layer
  - is primarily responsible for sunburn
  - stimulates the production of melanin (causes tanning)
  - causes premature aging of skin
  - is associated with the development of moles in young children
  - causes skin cancer
- UVC
  - is completely absorbed by the atmosphere
  - can be produced artificially

UVB is the most damaging of the two types of ultraviolet radiation that reach the earth's surface. UVA, while less harmful, is still dangerous. Both contribute to serious health problems.

## Factors that affect UV radiation levels

Ultraviolet radiation levels vary throughout the year and throughout the day. Here are the factors that increase human risk of UV radiation overexposure and its consequent health problems.

### Time of Day

The amount of ultraviolet radiation is greatest around noon when the sun is directly overhead. At this time, the UV radiation is stronger because it travels through less atmosphere. In the early morning and later afternoon, the sun's rays pass through the atmosphere at an angle, which greatly reduces their intensity.

### Time of Year

The sun's angle varies with the seasons, causing the intensity of UV rays to change. Ultraviolet intensity is highest during the summer months.

### Latitude

UV radiation remains high year-round at or near the equator. Ozone is naturally thinner there than at higher latitudes, so there is less ozone to absorb the UV radiation as it passes through the atmosphere. At higher latitudes, the sun is lower in the sky and UV rays must travel a greater distance through ozone rich portions of the atmosphere. Thus higher latitudes are less exposed to UV radiation.

### Altitude

Solar ultraviolet radiation increases with altitude, so people at higher altitudes are at increased risk of overexposure.

### Weather Conditions

Cloud cover reduces ultraviolet levels, but not completely. Depending on the thickness of the cloud layer, it is possible to sunburn—and increase the risk of eye and skin damage—on a cloudy summer day, even if it does not feel very warm.

### Reflection

Surfaces such as snow and sand reflect much of the UV radiation that reaches them. This reflection can make UV intensity deceptively high, even in shaded areas.

# Rationale for Action

Exposure to solar ultraviolet radiation leads to negative health problems and increases the financial burden on our health care system.

## Health effects of ultraviolet light exposure

The major health problems linked to UV overexposure are skin cancer, other skin damage, eye damage and immune system suppression.

### Skin Cancer

There are three different types of skin cancer. Basal cell and squamous cell carcinomas ("nonmelanoma" skin cancers) are less deadly than melanoma,

the most severe form of skin cancer. Nonmelanoma skin cancers have a cure rate as high as 95 percent if detected and treated early. Left untreated, however, they can spread, causing disfigurement and leading to more serious health problems and the death of more than 50 percent of those who have skin cancer. The effects of skin cancer often extend beyond the physical health of individuals to include emotional strain, unemployment or changes in job status, personal financial burdens, increased stress levels, and challenges to personal and family relationships. The three types of skin cancer are:

- **Basal cell Carcinoma**
  Basal cell carcinomas, the most common but least dangerous, account for 70-80 percent of all skin cancers. Basal cell carcinomas occur most often on sun exposed areas such as the head, neck and upper trunk; though they may appear on other parts of the body.

  These carcinomas usually start as small, round or flattened lumps, which are red, pale or pearly in colour and many have blood vessels on the surface. A small scaly area like a patch of eczema may also be a basal cell carcinoma. These cancers grow slowly, and rarely spread to other parts of the body. They can, however, penetrate to the bone and cause considerable damage. Basal cell carcinomas are most common in people over 40, but can also occur in younger adults.

- **Squamous cell Carcinoma**
  Squamous cell carcinomas are less common than basal cell carcinomas but grow faster, developing over a period of weeks to months. They occur most often on the areas most exposed to the sun—the head, neck, hands and forearms.

  They are more serious than basal cell carcinomas because they may spread to other parts of the body if not treated promptly. About one to two percent of these carcinomas spread and become life threatening. A squamous cell carcinoma appears as a red scaly spot or lump, usually thickened, which may bleed easily or ulcerate and is tender to touch. Squamous cell carcinomas are associated with years of exposure to the sun.

- **Melanoma**
  Melanomas account for less than five percent of all diagnosed skin cancers. They are the most dangerous and, if left untreated, can spread to other parts of the body. Melanomas can occur from adolescence onwards. On rare occasions, they occur in children. Half of all melanomas occur in people under 50 years of age.

  Melanomas can appear anywhere on the body. In males, they appear most frequently on the upper back. In females, they are most often detected on the lower legs. A melanoma can appear on the skin as either a new spot on previously normal skin; or as a birthmark, stain, mole or freckle that changes in colour, size, shape or surface and that itches, tingles, bleeds or weeps. Melanomas that are treated early have a 95 percent cure rate.

**Other skin damage**

- **Actinic Keratoses**
  Actinic keratoses are not skin cancers, but may sometimes turn into skin cancers. Although premalignant, actinic keratoses are a risk factor for squamous cell carcinoma. Actinic keratoses appear as raised, red or red-brown, rough-textured growths that occur on body areas exposed to the sun. The face, hands, forearms, and "V" of the shirt or dress collar are especially susceptible. People who develop actinic keratoses should take extra precautions in the sun.

- **Premature Aging**
  Chronic exposure to the sun also causes premature aging of the skin. Over time, the skin can become thick, wrinkled and leathery. Since it occurs gradually, often showing up many years after most of a person's sun exposure, premature aging is often regarded as an unavoidable, normal part of growing older. But with proper protection from UV radiation, most premature aging of the skin can be avoided.

**Eye damage**

Exposure to the sun's ultraviolet rays increases the likelihood of cataracts, cloudy vision caused by a loss of transparency in the lens of the eye. Left untreated, cataracts can lead to blindness. Although curable with modern eye surgery, cataracts diminish the quality of life for many Canadians and greatly increase costs to the health care system.

Other types of eye damage include pterygium—tissue growth that can block vision; skin cancer around the eyes; and degeneration of the macula, the part of the retina where visual perception is most acute. All eye problems associated with sun exposure can be minimized by protecting the eyes properly from both UVA and UVB radiation.

**Immune system suppression**

Research indicates that overexposure to UV radiation may suppress proper functioning of the body's immune system and the skin's natural defenses. This may take the form of impaired responses to immunizations, increased sensitivity to sunlight and adverse reactions to some medications.

## Skin cancer statistics and associated health care costs

While people in locations such as Australia and the southern United States experience more sun exposure throughout the year, Canadians face concentrated exposure over a shorter period of time—during the months of April through September when the sun is most intense. Many scientists are concerned that skin cancer is becoming an epidemic in North America.

- An estimated 60,000 new cases of skin cancer were diagnosed in Canada in 1997.
- Malignant melanoma is the fourth most frequent cause of cancer deaths in people aged 19-49 in Canada. Two people die from melanoma every day in this country.

British Columbia has the highest melanoma rates in Canada and skin cancer rates are increasing in this province. While rates for females appear to be leveling off, rates for males are increasing. Nonmelanoma skin cancers account for the greatest overall increase, at three to four percent per year.

Statistics for 1998 for nonmelanomas are:

- 1,372 new cases of squamous cell carcinomas (839 for males, 533 for females).
- 5,341 new cases of basal cell carcinomas (2,884 for males, 2,457 for females).

The 1998 statistics reveal a total of 573 new cases of melanoma (311 for males and 262 for females).

More than 100 deaths per year in B.C. are attributable to skin cancer.

Efforts to estimate costs associated with skin cancer in Canada have been limited. Australia has the highest rate of skin cancer in the world with an estimated 1000 deaths annually. Costs to the Australian health care system for treatment of skin cancer are estimated at $400 million per year (1989). Health related costs including hospitals, nursing homes, medical, allied health and pharmaceutical costs are estimated at $734 million per year. When indirect costs in the form of sick leave and foregone earnings are included, the total cost of skin cancer to the Australian community is an estimated $2 billion per year. Based on current skin cancer rates in British Columbia, direct and related health costs for skin cancer are estimated between $6 and $7 million per year.

*More than 100 deaths per year in B.C. are attributable to skin cancer.*

## The role of prevention

Skin cancers are largely preventable. Sun exposure is the principal preventable risk factor. About 90 percent of all nonmelanoma skin cancers can be attributed to UV exposure. Solar exposure is established as a major cause of melanoma in light-skinned populations. An estimated 75 percent of skin cancers could be prevented by adequate skin protection in childhood alone. The published literature and experiential evidence indicate that primary and secondary prevention programs—encouraging sun protective attitudes and behaviours, promoting early detection and treatment—hold promise for the reduction of skin cancer in the future.

Benefits associated with prevention initiatives are now being realized in jurisdictions such as Australia, which has been at the forefront of skin cancer prevention for the past two decades. The state of Victoria, for example, initiated its comprehensive prevention program more than 10 years ago and has seen an estimated 11 percent reduction in skin cancer incidence for people under the age of 50. This reduction is attributed to the adoption of sun protective behaviours and early detection of melanomas. Adequate protection against the sun's UV rays has the potential to reduce skin cancer and related costs to the health care system.

## Risk Factors and Conditions

Although skin cancer can affect any individual, people with certain characteristics are particularly at risk. The individual and environmental risk factors for skin cancer are:

- Fair to light skin complexion, fair hair and light eyes
- Accumulating sun exposure over time
- History of sunburns early in life
- Family history of skin cancer
- Personal history of skin cancer
- Large number of moles
- Atypical moles
- Freckles (as an indicator of sun sensitivity and sun damage)
- Skin that always burns, never tans, on first exposure, and
- Thinning ozone layer—as the ozone layer thins, more UV radiation reaches earth's surface, increasing skin cancer risk.

Some medications, such as immunosuppressant drugs, may increase susceptibility to skin damage from UV radiation. People who have received ultraviolet therapy for conditions such as psoriasis may be at higher risk. Use of artificial UV radiation such as sun lamps and sun beds may increase the risk of developing skin cancer. Finally, some researchers attribute social values to increased sun exposure and skin cancer risk; for most of this century, suntanned skin has been linked with youth, beauty and health.

## Multifaceted Prevention Interventions

To reduce the incidence, mortality and morbidity of skin cancer, change must occur through multiple mechanisms and at a number of levels including the individual, the organization and the community. The strategy adopts a comprehensive approach to public health that combines methods to change individual behaviour with methods to influence social, institutional, environmental and contexts. With the goal of generating sustainable health gains, the strategy draws on several established primary and secondary prevention interventions:

- Personal sun protective behaviours and practices.
- Public education to provide a rationale for behaviour change and action.

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- Personal sun protective behaviours and practices.
- Public education to provide a rationale for behaviour change and action.

- Formal education in schools to increase awareness among children and youth, and continuing education for health professionals to encourage early detection and treatment.
- Public policies in all sectors to support sun protective actions.
- Supportive environments to facilitate structural and architectural innovation.
- Community action to mobilize and sustain "sun smart" initiatives.

# Linking the Strategy to Other Initiatives

The Sun Awareness and Skin Cancer Prevention Strategy for British Columbia is linked to various past and ongoing initiatives.

## Regional

Several initiatives have already been undertaken in health regions around the province by public health nurses, medical health officers, environmental health officers and others, to increase awareness of the harmful effects of the sun. Specific initiatives include a regional beach project coordinated locally by the Canadian Dermatology Association and several initiatives implemented through the Cancer Centre for the Southern Interior. Some regional sun-related initiatives have been incorporated into this document as immediate actions to pursue.

## Provincial

The strategy is linked to several Ministry of Health initiatives. These include the Strategic Directions for British Columbia's Health Services System (1999), which outlines a three-year directional plan for health services in B.C., and Health Goals for British Columbia, produced by the Office of the Provincial Health Officer in 1997. The health goals provide a framework for health planning and priority setting, and reflect current understandings related to the social, economic and environmental factors that influence health.

The Sun Awareness and Skin Cancer Prevention Strategy builds on initiatives already undertaken in this field, for example, the B.C. Cancer Agency's Cancer Control Research Group on Skin Tumors, especially its work on early detection and control. The Ministry of Health and the Ministry of Environment, Lands and Parks have been most involved in recent sun-safety initiatives, but activities have also occurred at regional/community levels and in professional associations. Some activities in B.C. over the past five years include:

- Production of youth-oriented television commercials titled "Rub It In," part of the Ministry of Health's "PreventionCare" initiative which focused on the use of sunscreens.

- Development of two Health Files: #11 "Ultraviolet Light," and #26, "Sun smart Your Kids," by the Ministry of Health.
- Support for community-based sun-safety activities by the Ministry of Health, including "Sun Smart Events" conducted by public health nurses and environmental health officers; distribution of permanent outdoor "Be Sun Smart" signs (with the Canadian Dermatology Association, the B.C. Association of Optometrists and the Canadian Cancer Society); and, distribution of a "Be Sun Smart" poster to health care professionals, schools, daycare centres, and regional and community health facilities around the province.
- Production by the Ministry of Environment, Lands and Parks of several brochures that address UV radiation and ozone depletion.
- Sponsorship by the Ministry of Environment, Lands and Parks of a "Clean Air Day" in Victoria every summer.
- Dissemination of information on skin cancer detection by the Physiotherapy Association of B.C to its members.

## National and International

The Sun Awareness and Skin Cancer Prevention Strategy also builds on national sun awareness initiatives. Responding to increased public concern about ozone depletion and intensified UV radiation, Environment Canada launched two programs in 1992:

- The Ozone Watch Program measures the average departure between the ozone values observed over the past 14 day period and the pre-1980 mean trend.
- The UV Index Forecast Program measures the intensity of the sun's UV radiation adjusted for forecast sky conditions. It predicts daily maximum UV levels grouped into four categories: low (0-3.9), moderate (4-6.9), high (7-8.9), and extreme (9 or more). The program provides information about solar UV radiation so Canadians can take action to protect themselves.

Other national initiatives include the Canadian Dermatology Association's annual sun awareness campaign and Environment Canada's sun awareness poster campaign. In addition, the National Working Group on Primary Cancer Prevention identified overexposure to the sun's UV rays as the main issue in its ongoing project to develop a cancer control strategy for Canada.

The strategy also reflects findings from Canada's first National Survey on Sun Exposure and Protective Behaviours, conducted in 1996 by the Institute of Health Promotion Research, University of British Columbia, and funded by the National Cancer Institute of Canada, Canadian Cancer Society, Canadian Dermatology Association and Environment Canada. Finally, the Sun Awareness and Skin Cancer Prevention Strategy draws on the experiences of other jurisdictions that have undertaken similar initiatives including Australia, the United States and England.

# Strategic Directions for Sun Awareness and Skin Cancer Prevention

The Sun Awareness and Skin Cancer Prevention Strategy outlines five strategic directions for increasing sun awareness and preventing skin cancer in British Columbia. Each direction outlines a rationale as to why this issue has been identified as a focus; provides available evidence relevant to this issue in BC; suggests priorities for future action; and highlights case examples of successful initiatives in other jurisdictions.

## Strategic Direction I: Sun Awareness and Protection In Multiple Settings

Health promotion practice demonstrates that many effective prevention programs adopt a "settings" approach. This means developing and implementing programs and policies where people live, learn, work and play—the family home, early childcare centres, schools, the workplace and the community, especially leisure, recreation and sports sites.

### Setting 1: Family home

***Rationale and evidence***

While most people know that their risk of developing skin cancer is directly related to the intensity and duration of exposure to sunlight, scientists now know that almost two-thirds of skin cancers can be attributed to overexposure to the sun during the first 18 years of life. Young children have very little skin pigment (melanin) to protect them from sun exposure. Parents can reduce their children's risk of developing skin cancer by taking protective action close to home. The aim is not to stop children from enjoying outdoor activities, but rather to be sure they are adequately protected from the harmful effects of the sun's rays.

The 1996 national survey revealed important information on B.C. parents' views and actions to protect their children from overexposure to the sun. The survey found that:

- 91 percent of parents reported that their children spend 30 minutes or more in the sun on an average summer day; and half reported that their children received two or more hours of sun exposure daily.
- 45 percent reported that one or more of their children received a sunburn of some degree during the summer months. Of those children, 52 percent were playing outdoors and 41 percent were participating in or watching outdoor recreation activities.
- While the majority of B.C. children wear sunscreen and a hat, 17 percent do not seek shade and 27 percent do not avoid the sun during peak hours.
- 17 percent of B.C. children rarely or never wear sun protective clothing and 58 percent do not wear sunglasses.

***Action priorities***

Guidelines to protect children from overexposure to the sun are the same at home, at school or during leisure activities.

- Plan outdoor activities when the sun's rays are less intense—before 11:00 a.m. and after 3:00 p.m.
- Ensure children wear sun protective clothing such as hats, sunglasses and tightly woven fabrics.
- Encourage children to play in the shade.
- Apply broad-spectrum, water-resistant sunscreens with a sun protection factor (SFP) of 30 or more.
- Explain to children why sun protection is important.
- Model effective sun protection behaviours and practices for children to follow.

Case example

### Sun Know How's Sun Safe Clothing Catalogue—England

**England's "Sun Know How" is a campaign by the Health Education Authority for the prevention of skin cancer. The campaign developed a Sun Safe Clothing Catalogue to support families in choosing sun safe clothing. The catalogue displays colorful pictures of fashionable clothing and accessories for children and parents; and includes prices, colours and sizes available. All fabrics have been tested by the National Radiological Protection Board to ensure that they block at least 98 percent of the sun's harmful rays. Catalogue offerings include, for example, "Big Tops" hats for children with hoods to keep the sun off the back of the neck and ears; T-shirts higher on the neck and back, with longer sleeves; long "cool shorts"; and two-piece swim and surf suits for boys and girls. The catalogue, which includes an order form, encourages parents to, "choose anything from the following pages, secure in the knowledge that it has been designed and tested to give you and your family the best possible protection from the sun."**

Encouraging sun protective behaviours at home, such as wearing sun safe clothing, makes it more likely children will apply these behaviours at school and play, and into adolescence and adulthood.

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## Setting 2: Early childcare centres

### *Rationale and evidence*

To impact future rates of skin cancer, childhood and adolescent sun exposure must be reduced. Early childcare centres can play a significant role in the prevention of skin cancer, for these reasons:

- A critical period for sustaining damage from exposure to UV radiation occurs during the years when children attend early childcare centres.
- Many children attend early childcare centres up to five days a week throughout the year, often during the high UV radiation risk period of each day.
- Children frequently play outdoors while attending early childcare centres.

Because the protective pigmentation in children's skin does not fully develop until three to four years of age, young children are more vulnerable to sunburn and skin damage. Caregivers at early childcare centres are in a unique position to promote skin cancer prevention by working with parents and instilling prevention habits early in life. Studies show, however, that childcare workers are relatively unaware of the sun's impact or the need for sun safety policies. Prevention initiatives undertaken by early childcare centres during the tender years of child development can serve children well by reducing their risk to skin cancer later in life.

*MYTH: Once you put on sunscreen you don't have to worry about covering up and you can stay in the sun all day.*

**FACT: Sunscreens do not protect skin completely. Many people don't use enough sunscreen and do not reapply it often enough. Apply sunscreen with a minimum of SPF 30 liberally every two hours to increase your protection.**

### *Action priorities*

In addition to adopting the action priorities recommended for the family setting, staff at early childcare centres should:

- Provide sun smart education programs for children and parents.
- Adopt sun safe policies to provide health enhancing environments for children.

Case example

### SunSmart Policy for Child Care Services—New South Wales, Australia

**In October 1999, the New South Wales Cancer Council released its SunSmart Policy for Child Care Services, outlining specific objectives and implementation strategies for each of the following priority areas:**

- **Sun protective behaviours—for staff, children and parents.**
- **Organization of outdoor activities—including outdoor activity times and places.**
- **A shaded environment—through shade structures and shade trees.**
- **Education—for staff, children and parents.**
- **Policy review—for ongoing evaluation and adjustment of SunSmart practices.**

**The policy includes six development steps that emphasize collaboration between parents and childcare workers. It is also linked to existing policies and procedures that ensure the health and safety of children, including state licensing regulations, national childcare accreditation requirements, and occupational health and safety regulations.**

Setting 3: Schools

***Rationale and evidence***

The central purpose of adopting sun smart policies and practices for schools is to minimize the damage of excessive UV radiation exposure for both staff and students, and to ensure an environment with long-term health benefits. Most children and adults can be sunburned after only 15 minutes exposure to the sun, when UV radiation is most intense (mid-day and summer months). Schools can have a major impact on the level of students' exposure to the sun, for the following reasons:

*Most children and adults can be sunburned after only 15 minutes exposure to the sun, when UV radiation is most intense (mid-day and summer months).*

- As in early childcare centres, older children are at school throughout the high-risk period five days a week.
- A critical period for sustaining damage from sun exposure occurs during the school years.

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*Most children and adults can be sunburned after only 15 minutes exposure to the sun, when UV radiation is most intense (mid-day and summer months).*

- As in early childcare centres, older children are at school throughout the high-risk period five days a week.
- A critical period for sustaining damage from sun exposure occurs during the school years.

- Children may spend several hours outdoors during the school day for recess, physical education classes, after-school activities and extra-curricular sports programs.
- Schools can play a significant role in changing student behaviour through education and skill building.
- Sun safety policies can be easily integrated into other school policies and practices.

Schools and teachers can play a major role in protecting children by teaching sun safety. Some jurisdictions, such as the Australian states, believe school boards have a major responsibility to, "initiate and implement skin cancer prevention strategies in the interests of students' health and long-term healthy environments." Schools in Canada and British Columbia are beginning to recognize their potential to influence sun related behaviour among school children, and some are taking action toward this goal.[1]

***Action priorities***

Primary and secondary schools can contribute to sun awareness and the prevention of skin cancers by developing and implementing comprehensive policies for sun safety. Such policies ensure that sun protection becomes an integral and sustainable part of the school culture. Schools can also set an example for parents and for the larger community to model similar sun protection practices and policies in their own settings. Action priorities for schools include the following:

- Incorporate sun protection and skin cancer prevention programs into the appropriate key learning areas of the school curriculum.
- Encourage the adoption of practical sun protection measures.
- Educate students about the potential dangers of artificial tanning practices such as sun lamps and tanning beds.
- Work to alter social acceptance of deliberate sun tanning and the belief that a suntan is healthy.
- Deliver sun protection messages in the context of healthy lifestyles.
- Relate sun protection messages to environmental issues and increase understanding of the UV index.
- Increase outside shade areas for both students and staff.
- Encourage students, parents, teachers and staff to wear protective clothing, hats and sunscreen for high-risk times such as lunch hour, sports events, field trips and school camps.
- Review sun protective behaviours and policies regularly and recommend improvements when necessary.

1 However, to date, most school-based initiatives in Canada have been adopted on an ad hoc basis, in the absence of any overall school policy or plan for sun awareness and skin cancer prevention.

Case example

### The SunWise School Program—United States

To help educators raise sun safety awareness, the U.S. Environmental Protection Agency has developed the national SunWise School Program for elementary schools. Participating schools sponsor classroom and school activities that raise children's awareness of stratospheric ozone depletion, UV radiation, and simple sun safety practices. Learning objectives of the program are increasing student ability to practice health-enhancing behaviours and reduce health risks, acquiring scientific knowledge, and developing an understanding of the environmental concepts related to sun protection.

The SunWise Schoo! Program recognizes that schools and educators have to address many issues on a daily basis, and is designed to provide maximum flexibility. For example, program elements can be used as stand alone teaching tools or as complementary lessons to integrate with existing school curricula. The program also offers several comprehensive teaching resources such as the SunWise Activity Guide, SunWise Internet Learning Site and UV Database, and Teacher/Parent Training Video.

While the focus of this initiative is the school setting, the SunWise School Program is a collaborative effort of schools, communities, teachers, parents, health professionals, environmental groups, meteorologists and educational organizations. The program sponsor, the Environmental Protection Agency, is exploring options to recognize and provide incentives for participating schools and teachers, so the program remains part of American school culture.

Setting 4: Workplace

***Rationale and evidence***

Sun exposure is now viewed as a major health issue for outdoor workers such as farmers, fishers, foresters, landscapers and gardeners, construction workers, lifeguards, and ski/surf/snowboard instructors. Although the data related to outdoor worker exposure is still evolving, some research shows they are susceptible to developing nonmelanoma skin cancers. Squamous cell and basal cell carcinomas, for example, are reportedly almost twice as prevalent in long-term outdoor workers than indoor workers; and outdoor workers are reportedly more than twice as likely to develop solar keratoses. In addition, people who work in outdoor occupations are reportedly more susceptible to developing malignant melanomas on parts of their body exposed to sunlight during working hours.

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The increased risk to skin cancers may partly be due to the reluctance of workers to take protective actions. Studies that examined the prevalence of sun protective behaviours among outdoor workers in Australia and the United States show that less than half of workers adequately protect themselves from the sun. This finding is consistent with the results of the 1996 Canadian National Survey on Sun Exposure and Protective Behaviours. In addition, the Canada-wide study revealed interesting facts related to sun exposure among outdoor workers in the province of British Columbia. For example:

- One out of five B.C. residents over the age of 15 has a job that requires them to work outdoors during the summer months.
- 68 percent of outdoor workers in B.C. are exposed to the sun, on average, for more than two hours a day.
- The majority of outdoor workers in B.C. who receive more than 30 minutes of sun are male (75 percent, vs. 25 percent for females), are younger (under 45 years) rather than older (72 percent vs. 28 percent), and have light complexions rather than dark.
- Overall, the majority of outdoor workers do not take sun protective actions. While many workers wear hats (70 percent) and sun protective clothes (76 percent), the majority do not use sunscreen (60 percent) and only 43 percent avoid the sun and seek shade (34 percent).
- Considering these facts, outdoor workers represent an important target group for sun awareness and skin cancer prevention programs, activities and policies.

***Action priorities***

While sun protective interventions for outdoor workers are similar in several ways to other settings, some unique factors warrant consideration. Important actions to increase sun awareness and prevent skin cancer for people whose occupation takes them outdoors include the following:

- Change the job—move it indoors or to a different (shady) location if possible.
- Provide shade with portable shade structures.
- Spend lunch and coffee breaks in natural shade (from trees) or existing shade (such as shade from buildings).
- Cover work areas with canopies made from heavy textile or coated textile fabrics.
- Erect tents and umbrellas.
- Rotate workers so they are not all exposed to UV radiation for the full duration of high exposure—11:00 a.m. to 3:00 p.m.
- Wear personal protective equipment including sun protective clothing, protective headgear, sunglasses and sunscreen.
- Engage the Workers' Compensation Board to support action for sun safety policies.

Case example

## Sun Smart Construction Site Project—Northern Territory, Australia

Recently, the Northern Territory Anti Cancer Foundation and the Work Health Authority of Australia conducted a study to evaluate knowledge, attitudes and behaviour of Northern Territory construction workers in relation to UV radiation and sun safety practices. They used this information to develop statewide recommendations for workplace safety in the construction industry. The Sun Smart Construction Site Project recommendations included:

- Implement structural changes to increase shade areas.
- Facilitate consultation between outdoor workers (and their employers) and occupational health and safety officers, as well as Work Health Authority personnel.
- Conduct on-site skin examinations (Spot Check Clinics) by dermatologists to promote early detection and treatment of skin cancer (secondary prevention).
- Orient new workers to the effects of overexposure to UV radiation and personal sun protection strategies.
- Include a written section on sun safety in printed materials given to new employees beginning a construction site job.
- Include sun safety information in all relevant worksite safety publications and newsletters for the construction industry.
- Conduct on-site "toolbox meetings" where items of health and safety are discussed, including information to raise awareness of skin cancer.
- Erect construction site notice boards that include posters and educational notices on skin cancer and overexposure prevention.
- Encourage coordination between construction industry management and workers in developing sun smart policies.

Representatives of the Northern Territory Anti Cancer Foundation and the Work Health Authority who participated in the development of the Sun Smart Construction Site Project concluded that the project set an example of what can be achieved through negotiations with all sectors of an industry to improve working conditions for outdoor workers. They viewed this project as a catalyst to stimulate other outdoor industries and occupations to define precisely their practices and polices related to sun safety.

## Setting 5: Community—Leisure, recreation and sports sites

***Rationale and evidence***

People of all ages participate in leisure and sporting activities, increasing their exposure to the sun's ultraviolet rays. Children are especially encouraged to be physically active both at school and in the community. Exercise is important for children and adults alike to ward off health risks such as obesity, high blood pressure and high cholesterol, which compromise health later in life. The message to "get physical," however, needs to be delivered in the context of a healthy lifestyle—which includes sun safe practices.

Coaches and managers of sporting clubs, and parks and recreation employees, can play an important role in protecting athletes and outdoor enthusiasts from skin cancer. In Queensland, Australia, for example, the Sports Coaching Council advised coaches that "they have a duty of care towards sports team members and must make the safety of athletes their 'number one consideration' at all times". This includes taking precautions to protect athletes from the sun, modeling sun safe practices, and developing a SunSmart Sport Policy.

The 1996 National Survey on Sun Exposure and Protective Behaviours: Report for British Columbia examined the sun safe practices of people at leisure. Findings indicate that:

- 31 percent of British Columbians are exposed to sun during leisure time for more than two hours a day, and men tend to be exposed for longer periods of time than women.
- Overall, most British Columbians do not take protective action during leisure time in the sun.
- During leisure time, almost half reportedly do not wear sunscreen on either their face or body and do not seek shade. The prevalence of sun protective behaviours tends to increase with age.
- British Columbians who spend their leisure time in a sunny climate during winter vacations experience a significantly higher amount of sun exposure than during their typical summer leisure activities.
- 84 percent of winter vacationers spend one or more hours in the sun during vacation, compared to 63 percent during regular summer months at home.
- Few winter vacationers take adequate measures to protect themselves from the harmful effects of intense sun exposure: 38 percent do not avoid the sun between 11:00 a.m. and 3:00 p.m., 26 percent do not actively seek shade, 33 percent do not wear a hat or protective clothing, and 29 percent and 34 percent (respectively) do not use sunscreen on their face or body.

*MYTH: You should be careful about getting a sunburn while at the beach but gardening, sitting in the shade, or taking a walk is safe.*

**FACT: Whether on the beach or in the backyard, it is easy to suntan or sunburn even if you block out the direct sun but are still exposed to blue sky. Those bright white clouds are also strong sources of UV rays.**

***Action priorities***

While sun protection activities may vary by leisure or sporting activity, key themes can be identified. Organizations and sites that promote recreational activities can institute structures, networks, programs, policies and practices to include sun protection as a routine part of safe participation in sport. Important sun safe actions for leisure, recreation and sporting activities in the community include the following:

- Assess current sun awareness and sun safety provisions.
- Develop a sun smart policy and inform members of the policy as part of the membership application process.
- During sports and leisure events provide sunscreen and suitable shade structures. Wherever possible, conduct outdoor activities and competitions before 11:00 a.m. and after 3:00 p.m.
- Hold training sessions and competitions at venues that provide shade for spectators.
- Encourage all coaches, trainers and adult members of clubs to act as positive role models for younger members.
- Incorporate broadcast announcements to offer sun protection reminders at sporting and leisure events.
- Refer to the importance of sun protection in pre-event publicity literature.
- Regularly reinforce sun smart practices through newsletters, committee meetings and club or association activities.
- Evaluate and adjust sun safe practices and policies annually.

Case example

### "Sunwise Stampede"—A sun safety program for zoo visitors—California

The Sunwise Stampede Program is a three-year research study set in the San Diego Zoo. The goal is to encourage children visiting the San Diego Zoo to protect themselves from UV radiation by wearing sunscreen and wide-brim hats, and making use of available shade. Typically, zoo visitors tend to stay for several hours and are consequently exposed to the sun's harmful effects for long periods of time. To counter these effects, the San Diego Zoo developed a program that consists of six sun protection strategies.

- Tip Sheet—targets parents and emphasizes the importance of protecting children from UV radiation.
- Discount Coupons—for reduced prices on sunscreen and children's hats purchased at the zoo gift shops.
- Children's Rubber Stamp Activity—uses animal analogies to illustrate how animals protect themselves from the sun.
- Children's Zoo—hands-on activities specific to this area of the zoo that build on the animal analogy theme.
- Environmental Prompts—signs placed strategically throughout the zoo reminding visitors to be sun safe.
- Zoo Staff—in-service training sessions for outdoor zoo staff.
- Bus Tours—tour operators include broadcast reminders for zoo visitors to practice sun safe behaviours.

The Sunwise Stampede Program is a co-operative agreement between the Graduate School of Public Health at San Diego State University, the U.S. Centers for Disease Control and the Zoological Society of San Diego. The program is currently developing and distributing a resource package to outdoor zoos and parks throughout the United States to encourage the adoption of similar programs nation-wide.

## Strategic Direction II: Early detection and screening

***Rationale and evidence***

Strategic Direction I predominately addressed primary prevention health promotion and disease prevention interventions in various settings. Secondary prevention interventions also need to be considered in a comprehensive strategy

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## Strategic Direction II: Early detection and screening

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for sun awareness and skin cancer prevention. Secondary prevention initiatives focus on early detection and treatment of skin cancers.

Skin cancer is highly curable if detected early. The majority of melanomas arise on otherwise normal skin, and early melanomas have distinctive features such as an irregular border, shape and pigmentation. Early detection and treatment have been shown to substantially improve the prognosis of melanoma. In addition, early detection of nonmelanoma skin cancers permits less invasive methods of treatment and decreases the risk of disfigurement. The distinctive characteristics of melanoma and the benefits of early treatment of melanoma and nonmelanoma skin cancers suggests that secondary prevention interventions, such as educating the general population concerning skin changes that require medical attention, can be successful.

Today, most professionals in the field agree that there is insufficient evidence to support regular screening of people without symptoms for melanoma or nonmelanoma skin cancer. This position was supported at the Second Symposium on Ultraviolet Radiation-Related Diseases in Vancouver, in 1996. It is also supported by the American College of Preventive Medicine in its 1998 Policy Statement on Screening for Skin Cancer. Instead, experts recommend that early detection programs target people who are at increased risk of developing skin cancer and who need to be alert to skin changes that require medical attention. For melanoma, this includes males, people over 50, people who have a large number of moles (typical and atypical), and people with a family history of the disease. Target groups for early detection of nonmelanoma skin cancers are, people over 50, people who have solar keratoses, and those who are fair skinned or have poor tanning ability.

***Action priorities***

Secondary prevention initiatives aimed at early detection and treatment of skin cancer include the following:

- Educate the public about key characteristics of skin cancer, particularly the early signs of melanoma.
- Conduct community-education campaigns in relation to skin cancer that encourage people seek to medical advice when skin changes occur.
- Encourage self-examination for skin cancer. Experts in the field recommend that people should spend 15 minutes per month inspecting their skin for suspicious spots.
- Focus public education messages on the benefits of early detection, especially among high-risk groups.
- Include the diagnosis and management of skin cancer in formal education for medical students and practicing general practitioners.
- Conduct research on the benefits of large-scale screening programs that includes assessments of cost-effectiveness.

**Case example**

### Skin Cancer Control Program—Western Australia

A principal goal of the Skin Cancer Control Program developed by the Cancer Foundation of Western Australia is "the reduction of morbidity and mortality due to melanoma and nonmelanoma skin cancer through early detection for high risk groups." This secondary prevention program is directed at health professionals and the community at large. The professional education program targets general practitioners and community health nurses and includes the following activities:

- Developing materials on early skin cancer detection and other relevant resources for distribution to general practitioners and community nurses.
- Training sessions and update meetings on skin cancer rates and patterns.
- Including skin cancer control messages in the nursing curriculum.
- "Spot the Difference" community clinics hosted by health professionals to educate the public about early signs of skin cancer.

The community education component of the Skin Cancer Control Program focuses on increasing public awareness of skin cancer through the development and distribution of educational resources and the effective use of local media. Activities include community information fairs that provide information on self-examinations, and including educational commentaries on skin cancer and early detection in community weekend newspapers.

## Strategic Direction III: Monitoring, surveillance, research and evaluation

To base decisions on evidence and apply best practices in sun awareness and skin cancer prevention, we need effective mechanisms for monitoring, surveillance, research and evaluation. The aim is to monitor activities and policies over time in order to determine their impact on, for example, changed patterns in sun protective behaviours or changed skin cancer rates. Any comprehensive strategy should incorporate and try to advance these activities.

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## Monitoring and Surveillance

***Rationale and action priorities***

Tracking progress on sun awareness and skin cancer prevention initiatives requires effective surveillance. Regular monitoring demonstrates whether programs are successful in achieving stated aims, and gives planners the data for setting future goals and objectives. Surveillance systems should monitor not only the incidence and prevalence of skin cancer, but also risk factors and the social and environmental conditions that contribute to them. In addition, skin cancer surveillance systems should be easily accessible and affordable, with the capacity to generate reports (for planning and evaluation purposes) on a regular basis. Important monitoring and surveillance activities include:

- Develop or augment data systems that include indicators of sun awareness and skin cancer prevention.
- Establish baseline measurements where they do not already exist.
- Conduct periodic population surveys of attitudes, knowledge and behaviour related to UV radiation and sun protection.
- Produce and disseminate information in the form of, for example, newsletters that cover programs and activities underway and outcomes realized.
- Consider annual workshops for those who work in the field to share program progress and outcomes, and offer to professional education and training in targeted areas.
- Develop annual progress reports on activities and outcomes to serve as a basis for review and recommending future activities with participating partners.

## Research and Evaluation

***Rationale and action priorities***

Research and evaluation mechanisms support and enhance programs for raising awareness of UV radiation dangers and preventing skin cancer. These processes need to be integrated into a comprehensive strategy to ensure that progress is continuously under review and that areas for future inquiry are being identified and pursued. Research and evaluation help to justify program and policy decisions, and to rally support and resources for effective implementation. Important research and evaluation activities include:

- Develop standardized research and evaluation protocols.
- Encourage evaluation studies of both process and outcome.
- Develop and apply standardized measures for sun related behaviours—including self-report and objective measures—and incorporate them into population-based surveys.
- Co-ordinate partners to develop a research agenda that identifies epidemiological, behavioural, basic and clinical studies.

- Provide incentives for community-based research as a way to build community capacity.
- Research "best practices" in skin cancer prevention.
- Institute ongoing evaluation systems to support the planning cycle.

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**Case example**

### Monitoring Initiatives to Meet The Health of the Nation Targets for Skin Cancer—England

England's 1996 white paper The Health of the Nation challenges the country to halt the rising incidence and mortality from skin cancer. It identifies monitoring and surveillance as a central strategy to meet this goal, accompanied by various multi-disciplinary health promotion interventions such as public education and health enhancing public policy.

Surveillance draws on several interrelated processes and activities, including:

- Efforts to improve the reliability of baseline data.
- Routine tracking of early-detection cases.
- Routine data collection on mortality and incidence of malignant melanoma.
- Enhanced registration protocols for both local and regional registries.
- Routine measurement of Breslow thickness for all melanomas (to improve prediction of future trends in melanoma incidence.)

The initiative has also instituted mechanisms to track personal sun protective behaviours through population-based studies of sun related behaviour, knowledge and attitudes. Finally, monitoring and surveillance have been extended to the community through ongoing evaluation of community-based public awareness campaigns on sun protection and skin cancer prevention.

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## Strategic Direction IV: Infrastructure requirements for effective implementation

Effective implemenation of a comprehensive strategy for sun awareness and skin cancer prevention involves various infrastructure requirements. These include:

- Structural requirements—effective leadership, co-ordination and management.
- Process requirements—forming partnerships and rallying support.
- Resource requirements such as funding, personnel and data.

The principle infrastructure requirements are:

***Obtain consensus on approach and purpose***

Interventions aimed at increasing sun awareness and preventing skin cancer can assume either a "population-health" approach or a "high-risk" approach. A population-health approach is directed at the population as a whole and considers the influence of social, economic and environmental factors and conditions. A "high-risk" approach focuses more narrowly on individuals who display risk factors for skin cancer. In practice, these two approaches to prevention are usually blended. Just where the emphasis rests depends on skin cancer incidence and prevalence rates, and the availability and training of health care workers. Today there is a broad consensus that both approaches—population-health and high-risk—should be part of any comprehensive strategy for cancer prevention.

*MYTH: Being in the sun feels so good it can't be harmful.*

**FACT: That nice warm feeling from the sun is caused by infrared radiation. Ultraviolet radiation is also present and can damage the skin without feeling hot.**

***Build and nurture partnerships***

Effective initiatives in sun awareness and skin cancer prevention need to be supported by partnerships among people who work collaboratively toward common aims. These are often coalitions that include international agencies; national, provincial and local governments; voluntary and non-profit organizations; private sector interests; the research community and the media. A spirit of collaboration and partnership around skin cancer prevention promotes integrated action on identified priorities. In addition, partnerships headed by a respected and recognized "champion" are best prepared to take on the work of implementation.

### *Rally public support*

Public support for skin cancer prevention interventions is also a necessary asset. Health-promotion professionals need their community to mobilize around issues. And community advocacy may be required to obtain such municipal legislation as increased shade provisions for municipal playgrounds. This requires that community members be well informed through public/education programs and campaigns on the risk factors for skin cancer. An understanding of the harmful effects of the sun's ultraviolet rays prepares people to rally behind skin cancer prevention initiatives in their own communities. Knowledge of sun safe behaviors alone may not be insufficient to guarantee safe practices. Communities must first decide for themselves that this is what they want and then partner with health-promotion professionals in designing and implementing a prevention program that fits their communities.

### *Establish an effective coordination mechanism*

Implementing a comprehensive sun awareness and skin cancer strategy requires guidance and direction from an effective coordinating mechanism. The international experience in this field shows that, to provide effective leadership, the coordinating body should:

- Bring together people with varied, interdisciplinary interests and expertise,
- Be adequately funded and staffed, and
- Have the capacity to exercise autonomy.

### *Provide adequate personnel, training and support*

Health care professionals such as general practitioners, nurses, optometrists and ophthalmologists are important partners in skin cancer prevention. Along with integrating sun awareness and skin cancer prevention into formal training for health care providers, periodic skin cancer prevention bulletins, lectures, or seminars could be provided to health care workers. Finally people outside the health sector—whose work could support, for example, the early detection of skin cancer need resources to increase their knowledge in this area. They include physiotherapists, swim instructors and lifeguards, massage therapists, cosmetologists and beauticians.

### *Apply evidence and knowledge base*

Applying science to support skin cancer prevention is a challenge to scientists and practitioners alike. Overall, evidence-based decision making is the desired standard for developing and implementing prevention strategies. Researchers from various sectors must work together to generate studies that help us understand issues related to sun protection and skin cancer prevention. We need to identify effective mechanisms for capturing and disseminating research findings to encourage the adoption of best practices at the program level.

Case example

### National Council on Skin Cancer Prevention—United States

In 1998, the Centers for Disease Control in the United States convened the National Council on Skin Cancer. The council is an alliance of organizations that have experience, expertise and knowledge in disease prevention and education, which will help the nation meet public-health objectives for preventing skin cancer. The council's activities are based on the Healthy People 2000 objective of increasing to 60 percent the proportion of people who limit sun exposure, use sunscreens and protective clothing when exposed to sunlight, and avoid exposure to artificial sources of UV radiation such as sun lamps and tanning booths.

The council's goals are to:

- Put skin cancer prevention on the agendas of relevant, national, state and local organizations.
- Increase awareness and preventive behaviours among all populations, with special emphasis on high-risk groups.
- Co-ordinate a public health response to nationwide efforts at reducing skin cancer, including joint programs and conferences, exchange of research findings, and audience specific initiatives.

The National Council on Skin Cancer Prevention approaches its mission through various agencies and associations including the American Academy of Dermatology, the American Academy of Family Physicians, the American Association for Health Education, the American Public Health Association, the American School Association, the Environmental Protection Agency, the Melanoma Research Foundation and the National Institutes of Health.

## Strategic Direction V: Partners and Roles in Skin Cancer Prevention

Implementing a comprehensive strategy for sun awareness and skin cancer prevention requires the involvement and commitment of multiple partners. There is convincing evidence that multifaceted prevention interventions are effective when expertise comes from a variety of disciplines and sectors. This section outlines the range of likely partners and ways each can contribute to raising awareness about sun protection and preventing skin cancer.

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**Provincial government**
The Ministry of Health can support the vision for skin cancer prevention by continuing to provide technical assistance and materials to the regions and allocating funds for certain community-based prevention initiatives. The Ministry of Health can initiate and support the formation of a provincial structure to provide overall leadership and co-ordination. The Ministry of Health can assist schools and communities supporting sun safety interventions and policies. The Ministry of Health can encourage and co-operate with other ministries engaged in sun awareness initiatives, such as the Ministry of Education; the Ministry for Children and Families; the Ministry of Small Business, Tourism and Culture; the Ministry of Environment, Lands and Parks; and the Ministry of Social Development and Economic Security; as well as the federal government.

**Municipalities**
Broad-based support from municipal governments would advance implementation of the strategy. Municipalities could develop and implement policies that support the strategy, and participate in planning partnerships to put important measures into practice. Municipal governments could also provide support such as facilities and sites for sun safe programs. They could also participate in public campaigns for sun safety and skin cancer prevention.

*MYTH: Sunburns may hurt a little but there's no permanent damage.*

**FACT: When the sun shines on you skin, the damage that occurs is similar to damage caused by x-rays. The more sunburns you have the greater your risk of skin cancer.**

**Health authorities**
In B.C.'s regionalized health care system, the health authorities are responsible for governing, managing and delivering health services. To address skin cancer prevention at the regional level, regional priorities and goals, in prevention initiatives need to be identified. Health authorities can work with local communities to aid them in determining their cancer prevention profile and designing and implementing a skin cancer prevention program that fits their community. Health authorities can also facilitate regional and community partnerships and coalitions.

**Public health and health-protection agencies**
National and provincial public health and health protection agencies can provide leadership for taking action. One example of this is Environment Canada's adoption and promotion of the UV Index. These agencies can also contribute by sanctioning sun awareness events such as "Sun Protection Week" in communities and schools.

**Health-service and other professionals**
In addition to the role of health-service professionals, including patient and public education, in early detection and treatment, health-related associations also have a role. They can advocate a balance between prevention and treatment, and support the development of health-enhancing public policies. Health associations can confer legitimacy on provincial and community prevention initiatives by participating in and supporting them. Other professionals, especially educators, are in a good position to spread the prevention message, whether in early childhood centres, primary and secondary schools, colleges or universities. Finally, professionals such as lifeguards, sports coaches, beauticians and estheticians can contribute by encouraging people to seek out medical attention if they notice suspicious skin lesions.

**Cancer agencies and societies**
National and provincial cancer agencies can support and conduct research, and facilitate public education. They can serve as a clearing house and referral source for information. Cancer agencies can collaborate with community groups to mobilize public support for community-based prevention initiatives and assist program planning and implementation.

**Scientific and Research community**
Researchers can advocate increased funding for research on best practices and for BC-based demonstration projects. They can establish an agenda for skin cancer prevention that supports multidisciplinary and community-based research. The research community can disseminate research findings through publications and scientific meetings and conferences. National and provincial funding agencies including Health Canada, the National Cancer Institute of Canada, the Canadian Cancer Society, the British Columbia Health Research Foundation, and the British Columbia Medical Services Foundation can support research on skin cancer prevention.

**Private sector**
Businesses can create an organizational culture that supports healthy living and adopts worksite health promotion programs and policies for their employees. For example, they can assess the work environment for shade provisions and make necessary structural adjustments. The private sector can also organize fund-raising efforts and make in-kind donations to support skin cancer prevention, and contribute to the shaping of public policy. The fashion, clothing and cosmetics industries as well as protective equipment manufacturers could be encouraged to pay more attention to sun safety issues.

**Media**
The media can spread sun safety and skin cancer information, encourage public discussion, and promote community-based prevention activities.

**Case example**

### New South Wales Skin Cancer Strategic Plan—NSW, Australia

The key principle of the New South Wales Strategic Plan for Skin Cancer Prevention and Control is:

> The creation of partnerships across the community, in a diverse range of organizations, is critical to the success of program activities aimed at achieving a reduction in the incidence of, and mortality form, skin cancer in the long term.

This principle-guided decisions on identifying partners and ways they could contribute to the various skin cancer prevention activities in the strategic plan. Each activity included in the plan is linked to a lead organization and a list of partners. The lead organization has agreed to a responsibility for initiating program activities and for developing and maintaining contact with the partners. A working group may be formed by the lead organization to further define roles and responsibilities. Partners in program activities may have varying roles and degrees of responsibilities negotiated in the planning and implementing stages of the strategic plan. Their role might be to continue work they are engaged in and communicate progress to other stakeholders, act as an adviser to other stakeholders, or assist in providing a network for delivering a program. Like other skin cancer initiatives in Australia, the New South Wales Strategic Plan for Skin Cancer Prevention and Control clearly identifies participating partners and defines their contribution to skin cancer prevention.

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